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DIVISION OF WATER
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FACT SHEET

**KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM
PERMIT TO DISCHARGE TREATED WASTEWATER
INTO WATERS OF THE COMMONWEALTH**

KPDES No.: KY0000311 Permit Writer: Ronnie Thompson Date: March 4, 2010
AI No.: 1601

1. SYNOPSIS OF APPLICATION

a. Name and Address of Applicant

North American Refractories Company
400 Fairway Drive
Moon Township, Pennsylvania 15108

b. Facility Location

North American Refractories Company - South Shore Plant
US Highway 23
South Shore, Greenup County, Kentucky

c. Description of Applicant's Operation

North American Refractories Company - South Shore Plant manufactures refractory brick and shapes for the steel and glass industry (SIC Code 3297 and 3255).

d. Production Capacity of Facility

N/A

e. Description of Existing Pollution Abatement Facilities

Outfall 001 - Process wastewater is treated by settling, flocculation, neutralization, pressure filtration, aerobic digestion and clarification. Storm water runoff is untreated.

Outfall 002 - Storm water runoff is untreated.

f. Permitting Action

This is a reissuance of a minor KPDES permit for an existing refractory.

2. **RECEIVING WATER**

a. Name/Mile Point

Facility discharges from Outfall 001 to Tygarts Creek at latitude 38-43-21 and longitude 82-57-35.

Facility discharges from Outfall 002 to Tygarts Creek at latitude 38-43-16 and longitude 82-57-33.

b. Stream Segment Use Classification

Pursuant to 401 KAR 10:026, Section 5, Tygarts Creek carries the following classifications: Warmwater Aquatic Habitat, Primary/Secondary Contact Recreation and Domestic Water Supply.

c. Stream Segment Categorization

Pursuant to 401 KAR 10:030, Section 1, Tygarts Creek is categorized as "Impaired Waters".

d. Stream Low Flow Condition

The 7-day, 10-year low flow and harmonic mean conditions of Tygarts Creek are 0.2 cfs and 7.1 cfs, respectively.

3. REPORTED DISCHARGE AND PROPOSED LIMITS

Serial Number 001 - Process wastewater and storm water runoff.

Effluent Characteristics	Reported Monthly Average	Discharge Daily Maximum	Proposed Monthly Average	Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	0.0127	0.1700	Report	Report	401 KAR 5:065, Section 2(4) 40 CFR 122.44(i)(1)(ii)
Temperature (°F)	63	77	N/A	89	401 KAR 10:031, Section 4
Total Suspended Solids (mg/l)	13	83	30	60	401 KAR 5:080, Section 2(3) 40 CFR 125.3
Oil & Grease (mg/l)	2.6	6.4	10	15	401 KAR 5:080, Section 2(3) 40 CFR 125.3
BOD ₅ (mg/l)	0.17	6.85	Report	Report	401 KAR 5:065, Section 2(3) 40 CFR 122.43(a)
Total Recoverable Zinc (mg/l)	0.12	0.52	Report	Report	401 KAR 5:065, Section 2(3) 40 CFR 122.43(a)
Hexavalent Chromium (mg/l)	BDL	BDL	Removing from permit		401 KAR 5:065, Section 2(4) 40 CFR 122.44(d)
Color (ADMI Units)	2.9	50.0	Removing from permit		401 KAR 5:065, Section 2(4) 40 CFR 122.44(d)
Chemical Oxygen Demand (mg/l)	51	326	Report	Report	401 KAR 5:065, Section 2(3) 40 CFR 122.43(a)
Total Organic Carbon (mg/l)	9	161	Report	Report	401 KAR 5:065, Section 2(3) 40 CFR 122.43(a)
Hardness (as mg/l CaCO ₃)	222	400	Report	Report	401 KAR 5:065, Section 2(3) 40 CFR 122.43(a)
pH (standard units)	6.1	8.9	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4

The data contained under the reported discharge columns is not from the renewal application, but rather from the analysis of the DMR data that has been reported during the term of the previous permit.

The abbreviation BDL means Below Detectable Limit, N/A means Not Applicable and BOD₅ means Biochemical Oxygen Demand (5-day)

4. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 001 - Process wastewater from casting operations at the rate of 1,250 gpd, process wastewater from grinding operations at the rate of 2,250 gpd and storm water runoff.

b. Effluent Characteristics

Flow, Temperature, Total Suspended Solids, Oil & Grease, BOD_5 , Total Recoverable Zinc, Hexavalent Chromium, Color, Chemical Oxygen Demand, Total Organic Carbon, Hardness and pH.

c. Pertinent Factors

A summarization of the water quality standards, assumptions, and calculations can be found in Attachment A - SSTWAM2004 for North American Refractories Company - South Shore Plant.

d. Monitoring Requirements

Flow monitoring shall be conducted once per month instantaneously.

Temperature, Total Suspended Solids, Oil & Grease, BOD_5 , Total Recoverable Zinc, Chemical Oxygen Demand, Total Organic Carbon and Hardness shall be monitored once per month by grab sample.

pH shall be monitored once per month by grab sample.

e. Justification of Conditions

The Kentucky regulations cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes.

Flow

The monitoring requirements for this parameter are consistent with the requirements of 401 KAR 5:065, Section 2(4).

Temperature

The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 4.

Total Suspended Solids and Oil & Grease

The limits for these parameters are consistent with the requirements of 40 CFR 125.3(c)(2) as incorporated by reference in 401 KAR 5:080, Section 2(3). The limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Conventional Pollutant Control Technology" (BCT) requirements for these pollutants.

BOD_5 , Total Recoverable Zinc, Chemical Oxygen Demand, Total Organic Carbon, and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(3).

Hexavalent Chromium

The removal of this parameter from the permit is consistent with 401 KAR 5:065, Section 2(4). A review of the DMR data for the previous permit indicated that reasonable potential did not exist for this parameter to be limited or monitored in the permit. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that this parameter be removed from the permit.

Color

The removal of this parameter from the permit is consistent with 401 KAR 5:080, Section 2(4). The previous permit contained a monitoring requirement but no effluent limitations. Utilizing data from the Discharge Monitoring Reports (DMRs), the Division of Water calculated expected effluent limitations and performed a reasonable potential analysis. The results of this analysis can be found in Attachment A. The reasonable potential analysis performed recommended that no monitoring or limits be applied to this parameter. Therefore, it is the "Best Professional Judgment" (BPJ) of the Division of Water that this parameter be removed from the permit.

pH

The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 4.

5. REPORTED DISCHARGE AND PROPOSED LIMITS

Serial Number 002 - Storm water runoff.

Effluent Characteristics	Reported Monthly Average	Discharge Daily Maximum	Proposed Monthly Average	Limits Daily Maximum	Applicable Water Quality Criteria and/or Effluent Guidelines
Flow (MGD)	0.020	0.144	Report	Report	401 KAR 5:065, Section 2(4) 40 CFR 122.44(i)(1)(ii)
Total Suspended Solids (mg/l)	28	204	30	60	401 KAR 5:080, Section 2(3) 40 CFR 125.3
Oil & Grease (mg/l)	1.4	2.1	10	15	401 KAR 5:080, Section 2(3) 40 CFR 125.3
Total Recoverable Zinc (mg/l)	0.62	0.80	Report	Report	401 KAR 5:065, Section 2(3) 40 CFR 122.43(a)
Hexavalent Chromium (mg/l)	0.04	0.06	Report	Report	401 KAR 5:065, Section 2(3) 40 CFR 122.43(a)
Hardness (as mg/l CaCO ₃)	N/A	N/A	Report	Report	401 KAR 5:065, Section 2(3) 40 CFR 122.43(a)
pH (standard units)	7.0	8.9	6.0 (min)	9.0 (max)	401 KAR 10:031, Section 4

The data contained under the reported discharge columns for Flow, Total Suspended Solids, Oil & Grease and pH is from an analysis of the DMR data that has been reported during the term of the previous permit. The data contained under the reported discharge columns for Hexavalent Chromium and Total Recoverable Zinc is from the renewal application.

The abbreviation N/A means Not Available.

6. METHODOLOGY USED IN DETERMINING LIMITATIONS

a. Serial Number

Outfall 002 - Storm water runoff.

b. Effluent Characteristics

Flow, Total Suspended Solids, Oil & Grease, Total Recoverable Zinc, Hexavalent Chromium, Hardness and pH.

c. Pertinent Factors

A summarization of the water quality standards, assumptions, and calculations can be found in Attachment B - SSTWAM2004 for North American Refractories Company - South Shore Plant.

d. Monitoring Requirements

Flow monitoring shall be conducted once per month instantaneously.

Total Suspended Solids, Oil & Grease, Total Recoverable Zinc, Hexavalent Chromium and Hardness shall be monitored once per month by grab sample.

pH shall be monitored once per month by grab sample.

e. Justification of Conditions

The Kentucky regulations cited below have been duly promulgated pursuant to the requirements of Chapter 224 of the Kentucky Revised Statutes.

Flow

The monitoring requirements for this parameter are consistent with the requirements of 401 KAR 5:065, Section 2(3).

Total Suspended Solids and Oil & Grease

The limits for these parameters are consistent with the requirements of 40 CFR 125.3(c)(2) as incorporated by reference in 401 KAR 5:080, Section 2(3). The limits are representative of the Division of Water's "Best Professional Judgment" (BPJ) determination of the "Best Conventional Pollutant Control Technology" (BCT) requirements for these pollutants.

Total Recoverable Zinc, Hexavalent Chromium and Hardness

The monitoring requirements for these parameters are consistent with the requirements of 401 KAR 5:065, Section 2(3).

pH

The limits for this parameter are consistent with the requirements of 401 KAR 10:031, Section 4.

7. ANTIDEGRADATION

The conditions of 401 KAR 10:029, Section 1 have been satisfied by this permit action. Since this permit action involves reissuance of an existing permit, and does not propose an expanded discharge, a review under 401 KAR 10:030 Section 1 is not applicable.

8. PROPOSED COMPLIANCE SCHEDULE FOR ATTAINING EFFLUENT LIMITATIONS

The permittee will comply with all effluent limitations by the effective date of the permit.

9. PROPOSED SPECIAL CONDITIONS WHICH WILL HAVE A SIGNIFICANT IMPACT ON THE DISCHARGE

Best Management Practices (BMP) Plan

Pursuant to 401 KAR 5:065, Section 2(10), a BMP requirement shall be included: to control or abate the discharge of pollutants from ancillary areas containing toxic or hazardous substances or those substances which could result in an environmental emergency; where numeric effluent limitations are infeasible; or to carry out the purposes and intent of KRS 224. The facility has several areas where support activities occur which have a potential of the discharge of such substances through storm water runoff or spillage. Some of these areas will drain to present wastewater treatment plants, others will not.

Outfall Signage

The KPDES permit establishes monitoring points, effluent limitations, and other conditions to address discharges from the permitted facility pursuant 40 CFR 122.48. In an effort to better document and clarify these locations the permittee should place and maintain a permanent marker at each of the monitoring locations.

10. PERMIT DURATION

Five (5) years. This facility is in the Big and Little Sandy, Tygarts Basin Management Unit as per the Kentucky Watershed Management Framework.

11. PERMIT INFORMATION

The application, draft permit, fact sheet, public notice, comments received and additional information is available from the Division of Water at 200 Fair Oaks Lane, Frankfort, Kentucky 40601.

12. REFERENCES AND CITED DOCUMENTS

All material and documents referenced or cited in this fact sheet are a part of the permit information as described above and are readily available at the Division of Water Central Office. Information regarding these materials may be obtained from the person listed below.

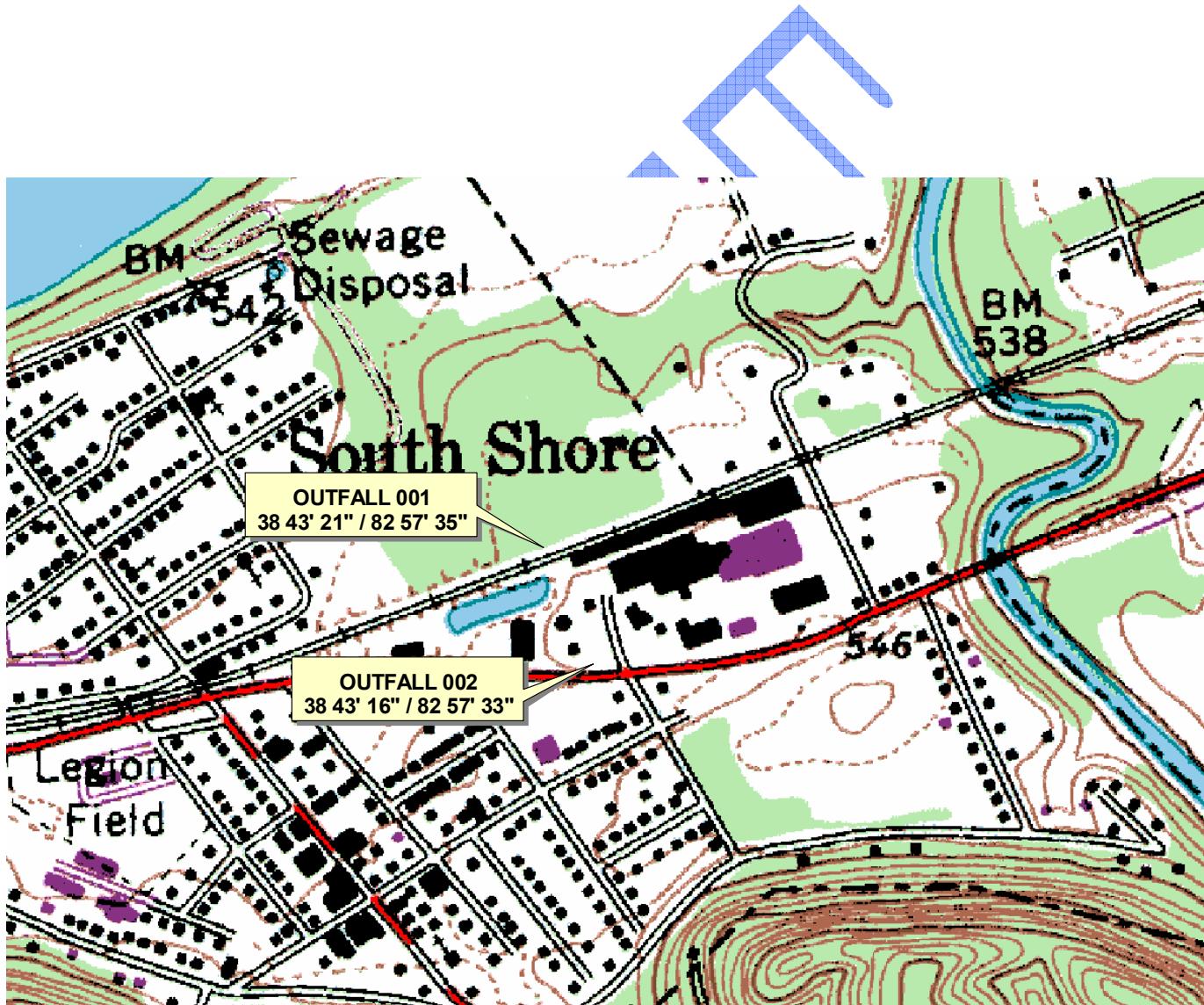
13. CONTACT

For further information on the draft permit or comment process, contact the individual identified on the Public Notice or the Permit Writer - Ronnie Thompson at (502) 564-8158, extension 4896, or email Ronnie.Thompson@ky.gov.

14. PUBLIC NOTICE INFORMATION

Please refer to the attached Public Notice for details regarding the procedures for a final decision, deadline for comments and other information required by 401 KAR 5:075, Section 4(2)(e).

North American Refractories Company - South Shore Plant



STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Permit Writer

Ronnie Thompson

Date Entered

3/4/2010

Facility Name

North American

KPDES Number

Refractories

Outfall Number

KY0000311

Case

001

Status:

Reissuance

Is this an existing facility – Enter “E”

E

Is this an existing facility with an increase in pollutant load – Enter “I”

Tygart Creek

Is this a new facility – Enter “N”

0.4

Is this a regional facility with an approved up-to-date 201 plan – Enter “R”

Maysville Utility

Has the permittee made a successful alternatives analysis/socioeconomic demonstration – Enter “A”

Commission

Receiving Water Name

Ohio River

Discharge Mile Point

573.54

Public Water Supply Name

0.0127

Intake Water Name

MGD

Intake Mile Point

0.2

Total Effluent Flow (Q_T)

cfs

Receiving Water 7Q10 (Q_{RW7Q10})

7.1

Receiving Water Harmonic Mean (Q_{RWHM})

SU

Receiving Water pH

20.00

Receiving Water Temperature

°C

Intake Water 7Q10 (Q_{IW7Q10})

10600

Intake Water Harmonic Mean (Q_{IWHM})

cfs

Effluent Hardness

42100

Receiving Water Hardness

222

Zone of Initial Dilution (ZID)

(as mg/l CaCO₃)

Mixing Zone (MZ)

100

Acute to Chronic Ratio (ACR)

(as mg/l CaCO₃)

Impaired

1

Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014

0

0.1

Yes

No

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Definitions

Acute to Chronic Ratio
 Aquatic Life Acute Criteria
 Aquatic Life Chronic Criteria
 Human Health Criteria - Fish Only
 Human Health Criteria - Fish & Water
 End of Pipe Effluent Limit
 Instream Background Concentration
 Toxicity Units - Acute
 Effluent Hardness

ACR
 C_A
 C_C
 C_{HHFO}
 C_{HHFW}
 C_T
 C_U
 TU_a
 H_T

Total Effluent Flow
 Receiving Water 7Q10
 Receiving Water Harmonic Mean
 Intake Water 7Q10
 Intake Water Harmonic Mean
 Zone of Initial Dilution
 Mixing Zone
 Toxicity Units - Chronic
 Receiving Water Hardness

Q_T
 Q_{RW7Q10}
 Q_{RWHM}
 Q_{IW7Q10}
 Q_{IWHM}
 ZID
 MZ
 TU_c
 H_{RW}

Aquatic Life - Chemical Specific

Acute

NO ZID given $C_T = C_A$
 ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix

$$C_T = [C_C(Q_T + (MZ)(Q_{RW7Q10})) - [C_U(MZ)(Q_{RW7Q10})]]/Q_T$$

Human Health - Chemical Specific

Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen

$$C_T = [C_{HHFO}(Q_T + (MZ)(Q_{RWHM})) - C_U(MZ)(Q_{RWHM})]/Q_T$$

Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen
 Non-Carcinogen

$$C_T = [C_{HHFW}(Q_T + (Q_{IWHM})) - C_U(Q_{IWHM})]/Q_T$$

$$C_T = [C_{HHFW}(Q_T + (Q_{IW7Q10})) - C_U(Q_{IW7Q10})]/Q_T$$

Aquatic Life - Whole Effluent Toxicity

Acute (Units TU_a)

NO ZID given $C_T = C_A$
 ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix (Units TU_c)

$$C_T = [C_C(Q_T + (MZ)(Q_{RW7Q10})) - [C_U(MZ)(Q_{RW7Q10})]]/Q_T$$

Conversion of TU_c to TU_a : $TU_c \times ACR = TU_a$

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Metal Aquatic Criteria

Pollutant

Total Recoverable Cadmium
 Chromium III
 Total Recoverable Copper
 Total Recoverable Lead
 Total Recoverable Nickel
 Total Recoverable Silver
 Total Recoverable Zinc

Acute Criteria

$$e^{(1.0166 (\ln \text{Hardness}) - 3.924)} \\ e^{(0.8190 (\ln \text{Hardness}) + 3.7256)} \\ e^{(0.9422 (\ln \text{Hardness}) - 1.700)} \\ e^{(1.273 (\ln \text{Hardness}) - 1.460)} \\ e^{(0.8460 (\ln \text{Hardness}) + 2.255)} \\ e^{(1.72 (\ln \text{Hardness}) - 6.59)} \\ e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$$

Chronic Criteria

$$e^{(0.7409 (\ln \text{Hardness}) - 4.719)} \\ e^{(0.8190 (\ln \text{Hardness}) + 0.6848)} \\ e^{(0.8545 (\ln \text{Hardness}) - 1.702)} \\ e^{(1.273 (\ln \text{Hardness}) - 4.705)} \\ e^{(0.8460 (\ln \text{Hardness}) + 0.0584)} \\ e^{(0.8473 (\ln \text{Hardness}) + 0.884)}$$

Hardness (as mg/l CaCO₃)

Zone Initial Dilution (ZID)
 Mixing Zone

$$H_{RW} + [H_T + H_{RW}] / ZID \\ [(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)] / [(QRW7Q10)(MZ) + (QT)]$$

T = Temperature

Total Ammonia Criteria

Chronic - applies state wide - unionized criteria of 0.05 mg/l
 °C

Acute - applies to the Ohio River (ORSANCO Criteria)

$$[0.05 * (1 + 10^{(pKa - pH)})] / 1.2 \\ [0.411 / (1 + 10^{(7.204 - pH)})] + [58.4 / (1 + 10^{(pH - 7.204)})]$$

Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concern assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Reasonable Potential Analysis

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

New Permits or New Pollutants on Permit Renewals

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

Permit Renewals - Existing Pollutants

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Max
Chloride	16887006	0.000000	0.000000	600.000000	1,200.000000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Residual Chlorine		0.000000	0.000000	0.011000	0.019000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Color		2.900000	4.400000	40,438.657677	NA	0.01%	0.00%	DMR	38	Remove	Remove	HH DWS	NA
Fluoride		0.000000	0.000000	1,078,364.204724	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Nitrate-Nitrite (as N)	14797558	0.000000	0.000000	5,391,821.023622	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Alpha		0.000000	0.000000	NA	15.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Beta		0.000000	0.000000	NA	50.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Radium		0.000000	0.000000	NA	5.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Sulfate (as SO4)		0.000000	0.000000	134,795,525.590551	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Surfactants		0.000000	0.000000	269,591.051181	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Barium	7440393	0.030000	0.030000	539,182.102362	NA	0.00%	0.00%	Application	1	None	None	HH DWS	NA
Total Recoverable Iron	7439896	0.000000	0.000000	1.000000	4.000000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Antimony	7440360	0.000000	0.000000	0.640000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Total Recoverable Arsenic	7440382	0.000000	0.000000	0.150000	0.340000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Beryllium	7440417	0.000000	0.000000	2,156.728409	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Cadmium	7440439	0.000000	0.000000	0.000489	0.004799	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Chromium	7440439	0.000000	0.000000	53,918.210236	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Copper	7440508	0.000000	0.000000	0.018441	0.029678	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Lead	7439921	0.000000	0.000000	0.008781	0.225340	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Mercury	7439976	0.000000	0.000000	0.000051	0.001700	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Total Recoverable Nickel	7440020	0.000000	0.000000	0.102418	0.921189	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Selenium	7782492	0.000000	0.000000	0.005000	0.020000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Silver	7440224	0.000000	0.000000	NA	0.014919	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Recoverable Thallium	7440280	0.000000	0.000000	0.006300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Total Recoverable Zinc	7440666	0.120000	0.190000	0.235495	0.235495	50.96%	80.68%	DMR	38	Remove	Monitoring	Chronic	Acute
Free Cyanide	57125	0.000000	0.000000	0.005200	0.022000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
2,3,7,8 Tetrachlorodibenzo P Dioxin	1746016	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrolein	107028	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrylonitrile	107131	0.000000	0.000000	0.000250	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzene	71432	0.000000	0.000000	0.051000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bromoform	75252	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Carbon Tetrachloride	56235	0.000000	0.000000	0.001600	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorobenzene	108907	0.000000	0.000000	21.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorodibromomethane	124481	0.000000	0.000000	0.013000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloroform	67663	0.000000	0.000000	0.470000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dichlorodibromomethane	75274	0.000000	0.000000	0.017000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloroethane	107062	0.000000	0.000000	0.037000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1-Dichloroethylene	75354	0.000000	0.000000	0.003200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloropropane	78875	0.000000	0.000000	0.015000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichloropropene	542756	0.000000	0.000000	1.700000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ethylbenzene	100414	0.000000	0.000000	29.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methyl Bromide	74839	0.000000	0.000000	1.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Max
Methylene Chloride	75092	0.000000	0.000000	0.590000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,2,2-Tetrachloroethane	79345	0.000000	0.000000	0.004000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Tetrachloroethylene	127184	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toluene	108883	0.000000	0.000000	200.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Trans-Dichloroethylene	156605	0.000000	0.000000	140.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,1-Trichloroethane	71556	0.000000	0.000000	107,836.420472	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
1,1,2-Trichloroethane	79005	0.000000	0.000000	0.016000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Trichloroethylene	79016	0.000000	0.000000	0.030000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Vinyl Chloride	75014	0.000000	0.000000	0.530000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chlorophenol	95578	0.000000	0.000000	0.150000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dichlorophenol	120832	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dimethylphenol	105679	0.000000	0.000000	0.850000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrophenol	51285	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pentachlorophenol	87865	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phenol	108952	0.000000	0.000000	1,700.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4,6-Trichlorophenol	88062	0.000000	0.000000	0.002400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acenaphthene	83329	0.000000	0.000000	0.990000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Anthracene	120127	0.000000	0.000000	40.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzidine	92875	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)anthracene	56553	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)pyrene	50328	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(k)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroisopropyl)ether	108601	0.000000	0.000000	65.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-ethylhexyl)phthalate	117817	0.000000	0.000000	0.002200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Butylbenzyl phthalate	85687	0.000000	0.000000	1.900000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chloronaphthalene	91587	0.000000	0.000000	1.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chrysene	218019	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dibenzo(a,h)anthracene	53703	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichlorobenzene	95501	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichlorobenzene	541731	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,4-Dichlorobenzene	106467	0.000000	0.000000	2.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
3,3-Dichlorobenzidine	91941	0.000000	0.000000	0.000028	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Diethyl phthalate	84662	0.000000	0.000000	44.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dimethyl phthalate	131113	0.000000	0.000000	1,100.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Di-n-butyl phthalate	84742	0.000000	0.000000	4.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrotoluene	121142	0.000000	0.000000	0.003400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Diphenylhydrazine	122667	0.000000	0.000000	0.000200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluoranthene	206440	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluorene	86737	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobenzene	118741	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobutadiene	87683	0.000000	0.000000	0.018000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorocyclopentadiene	77474	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Max
Hexachloroethane	67721	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Indeno(1,2,3-cd)pyrene	193395	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Isophorone	78591	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Nitrobenzene	98953	0.000000	0.000000	0.690000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodimethylamine	62759	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodi-n-Propylamine	621647	0.000000	0.000000	0.000510	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiphenylamine	86306	0.000000	0.000000	0.006000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pyrene	129000	0.000000	0.000000	4.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2,4-Trichlorobenzene	120821	0.000000	0.000000	0.940000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Aldrin	309002	0.000000	0.000000	0.000000	0.003000	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
alpha-BHC	319846	0.000000	0.000000	0.000005	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Beta-BHC	319857	0.000000	0.000000	0.000017	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
gamma-BHC (Lindane)	58899	0.000000	0.000000	0.000063	0.000950	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Chlordane	57749	0.000000	0.000000	0.000001	0.002400	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDT	50293	0.000000	0.000000	0.000000	0.001100	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDE	72559	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
4,4'-DDD	72548	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dieldrin	60571	0.000000	0.000000	0.000000	0.000240	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Alpha-Endosulfan	959988	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Beta-Endosulfan	33213659	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endosulfan sulfate	1031078	0.000000	0.000000	0.089000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Endrin	72208	0.000000	0.000000	0.000036	0.000086	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endrin aldehyde	7421934	0.000000	0.000000	0.000300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Heptachlor	76448	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Heptachlor epoxide	1024573	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Polychlorinated Biphenyls (PCBs)	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA	
Toxaphene	8001352	0.000000	0.000000	0.000000	0.000730	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
1,2,4,5-Tetrachlorobenzene	95943	0.000000	0.000000	0.001100	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-methyl-4,6-dinitrophenol	534521	0.000000	0.000000	0.280000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-D	94757	0.000000	0.000000	149,902.589685	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-TP (Silvex)	93721	0.000000	0.000000	5,391.821024	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-trichlorophenol	95954	0.000000	0.000000	3.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Asbestos	1332214	0.000000	0.000000	14,990,258,968.50	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Benzo(b)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroethyl)ether	111444	0.000000	0.000000	0.000530	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(chloromethyl)ether	542881	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloropyrifos	2921882	0.000000	0.000000	0.000041	0.000083	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (III)	16065831	0.000000	0.000000	0.165603	3.464740	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (VI)	18540299	0.000000	0.000000	0.011000	0.016000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Demeton	8065483	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Dinitrophenols	25550587	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Guthion	86500	0.000000	0.000000	0.000010	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 001

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Permit Writer

Ronnie Thompson

Date Entered

3/4/2010

Facility Name

North American

KPDES Number

Refractories

Outfall Number

KY0000311

Case

002

Status:

Reissuance

Is this an existing facility – Enter “E”

E

Is this an existing facility with an increase in pollutant load – Enter “I”

Tygart Creek

Is this a new facility – Enter “N”

0.4

Is this a regional facility with an approved up-to-date 201 plan – Enter “R”

Maysville Utility

Has the permittee made a successful alternatives analysis/socioeconomic demonstration – Enter “A”

Commission

Receiving Water Name

Ohio River

Discharge Mile Point

573.54

Public Water Supply Name

0.02

Intake Water Name

MGD

Intake Mile Point

0.2

Total Effluent Flow (Q_T)

cfs

Receiving Water 7Q10 (Q_{RW7Q10})

7.1

Receiving Water Harmonic Mean (Q_{RWHM})

SU

Receiving Water pH

20.00

Receiving Water Temperature

°C

Intake Water 7Q10 (Q_{IW7Q10})

10600

Intake Water Harmonic Mean (Q_{IWHM})

cfs

Effluent Hardness

42100

Receiving Water Hardness

100

Zone of Initial Dilution (ZID)

(as mg/l CaCO₃)

Mixing Zone (MZ)

100

Acute to Chronic Ratio (ACR)

(as mg/l CaCO₃)

Impaired

1

Permittee agrees to accept no mixing zone for bioaccumulative or persistent pollutants prior to 09/08/2014

0

0.1

Yes

No

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Definitions

Acute to Chronic Ratio
 Aquatic Life Acute Criteria
 Aquatic Life Chronic Criteria
 Human Health Criteria - Fish Only
 Human Health Criteria - Fish & Water
 End of Pipe Effluent Limit
 Instream Background Concentration
 Toxicity Units - Acute
 Effluent Hardness

ACR
 C_A
 C_C
 C_{HHFO}
 C_{HHFW}
 C_T
 C_U
 TU_a
 H_T

Total Effluent Flow
 Receiving Water 7Q10
 Receiving Water Harmonic Mean
 Intake Water 7Q10
 Intake Water Harmonic Mean
 Zone of Initial Dilution
 Mixing Zone
 Toxicity Units - Chronic
 Receiving Water Hardness

Q_T
 Q_{RW7Q10}
 Q_{RWHM}
 Q_{IW7Q10}
 Q_{IWHM}
 ZID
 MZ
 TU_c
 H_{RW}

Aquatic Life - Chemical Specific

Acute

NO ZID given $C_T = C_A$
 ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix

$$C_T = [C_C(Q_T + (MZ)(Q_{RW7Q10})) - [C_U(MZ)(Q_{RW7Q10})]]/Q_T$$

Human Health - Chemical Specific

Fish Only: Mixing Zone / Complete Mix

Carcinogen / Non-Carcinogen

$$C_T = [C_{HHFO}(Q_T + (MZ)(Q_{RWHM})) - C_U(MZ)(Q_{RWHM})]/Q_T$$

Fish & Water Only: Mixing Zone / Applicable at point of withdrawal

Carcinogen
 Non-Carcinogen

$$C_T = [C_{HHFW}(Q_T + (Q_{IWHM})) - C_U(Q_{IWHM})]/Q_T$$

$$C_T = [C_{HHFW}(Q_T + (Q_{IW7Q10})) - C_U(Q_{IW7Q10})]/Q_T$$

Aquatic Life - Whole Effluent Toxicity

Acute (Units TU_a)

NO ZID given $C_T = C_A$
 ZID given $C_T = (C_A - C_U) \times (ZID)$

Chronic Mixing Zone / Complete Mix (Units TU_c)

$$C_T = [C_C(Q_T + (MZ)(Q_{RW7Q10})) - [C_U(MZ)(Q_{RW7Q10})]]/Q_T$$

Conversion of TU_c to TU_a : $TU_c \times ACR = TU_a$

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Metal Aquatic Criteria

Pollutant

Total Recoverable Cadmium
 Chromium III
 Total Recoverable Copper
 Total Recoverable Lead
 Total Recoverable Nickel
 Total Recoverable Silver
 Total Recoverable Zinc

Acute Criteria

$$e^{(1.0166(\ln \text{Hardness}) - 3.924)} \\ e^{(0.8190(\ln \text{Hardness}) + 3.7256)} \\ e^{(0.9422(\ln \text{Hardness}) - 1.700)} \\ e^{(1.273(\ln \text{Hardness}) - 1.460)} \\ e^{(0.8460(\ln \text{Hardness}) + 2.255)} \\ e^{(1.72(\ln \text{Hardness}) - 6.59)} \\ e^{(0.8473(\ln \text{Hardness}) + 0.884)}$$

Chronic Criteria

$$e^{(0.7409(\ln \text{Hardness}) - 4.719)} \\ e^{(0.8190(\ln \text{Hardness}) + 0.6848)} \\ e^{(0.8545(\ln \text{Hardness}) - 1.702)} \\ e^{(1.273(\ln \text{Hardness}) - 4.705)} \\ e^{(0.8460(\ln \text{Hardness}) + 0.0584)} \\ e^{(0.8473(\ln \text{Hardness}) + 0.884)}$$

Hardness (as mg/l CaCO₃)

Zone Initial Dilution (ZID)
 Mixing Zone

$$H_{RW} + [H_T + H_{RW}]/ZID \\ [(Q_{RW7Q10})(MZ)(H_{RW}) + (Q_T)(H_T)]/[(QRW7Q10)(MZ)+(QT)]$$

T = Temperature

Total Ammonia Criteria

Chronic - applies state wide - unionized criteria of 0.05 mg/l
 °C

Acute - applies to the Ohio River (ORSANCO Criteria)

$$[0.05 * (1 + 10^{(pKa-pH)})]/1.2 \\ [0.411/(1+10^{(7.204-pH)})] + [58.4/(1+10^{(pH-7.204)})]$$

Bioaccumulative or Persistent

For new facilities after September 8, 2004 mixing zones shall not be granted for bioaccumulative or persistent pollutants of concern.

Mixing zones for bioaccumulative or persistent pollutants of concern assigned prior to September 8, 2004 shall expire no later than September 8, 2014, unless the permittee agrees to expiration of the mixing zone prior to that date.

Therefore, the application of the more stringent criteria of Human Health Fish & Water Consumption, Human Health Fish Only Consumption, and Aquatic Life Chronic shall apply as end-of-pipe effluent limitations.

Antidegradation

If a new facility or an existing facility that will have a pollutant load increase, the effluent limits are halved unless the receiving stream is impaired or the permittee has demonstrated a negative socioeconomic or cost benefit analysis.

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Reasonable Potential Analysis

In establishing water quality based effluent conditions the Division of Water must determine if the pollutant concentrations in the discharge will cause, have the reasonable potential to cause, or contribute to an excursion of any water standard. The process by which the Division of Water makes this determination is known as a Reasonable Potential Analysis.

A Reasonable Potential Analysis is performed by first calculating the expected effluent limitations for those pollutants with water quality criteria. The calculated limits are then compared to the concentrations reported on the KPDES permit application and/or a summarization of the values reported on the Discharge Monitoring Report (DMRs) submitted during the term of the permit. This comparison is made by dividing the reported value by the calculated effluent limitation and converting to a percentage. The following criteria are used in determining how the pollutant will be addressed in the permit.

New Permits or New Pollutants on Permit Renewals

If the reported concentration is less than 70% of the calculated effluent limit then no monitoring or limitations will be required.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is less than 12 then monitoring will be required.

If the reported concentration is equal to or greater than 90% and the number of analysis reported on the KPDES permit application is equal or greater than 12 then an effluent limitation will be required.

Permit Renewals - Existing Pollutants

If the reported concentration is less than 70% of the calculated effluent limit then and the source of the reported concentration was the DMRs for that facility and there were more than 12 DMRs utilized to determine the reported concentrations then the pollutant will be removed from the permit.

If the reported concentration is equal to or greater than 70% but less than 90% of the calculated effluent limit then monitoring will be required.

If the reported concentration is equal to or greater than 90% then an effluent limitation will be required.

In all cases, the Division of Water still may exercise its Best Professional Judgment in the implementation of the results.

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Max
Chloride	16887006	0.000000	0.000000	600.000000	1,200.000000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Residual Chlorine		0.000000	0.000000	0.011000	0.019000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Color		0.000000	0.000000	25,678.575000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Fluoride		0.000000	0.000000	684,762.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Nitrate-Nitrite (as N)	14797558	0.000000	0.000000	3,423,810.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Alpha		0.000000	0.000000	NA	15.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Beta		0.000000	0.000000	NA	50.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Radium		0.000000	0.000000	NA	5.000000	0.00%	0.00%	No Data	0	None	None	NA	Acute
Sulfate (as SO4)		0.000000	0.000000	85,595,250.000000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Surfactants		0.000000	0.000000	171,190.500000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Barium	7440393	0.020000	0.020000	342,381.000000	NA	0.00%	0.00%	Application	1	None	None	HH DWS	NA
Total Recoverable Iron	7439896	0.000000	0.000000	1.000000	4.000000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Antimony	7440360	0.000000	0.000000	0.640000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Total Recoverable Arsenic	7440382	0.000000	0.000000	0.150000	0.340000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Beryllium	7440417	0.000000	0.000000	1,369.524000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Cadmium	7440439	0.000000	0.000000	0.000271	0.002133	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Chromium	7440439	0.000000	0.000000	34,238.100000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Total Recoverable Copper	7440508	0.000000	0.000000	0.009329	0.013999	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Lead	7439921	0.000000	0.000000	0.003182	0.081645	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Mercury	7439976	0.000000	0.000000	0.000051	0.001700	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Total Recoverable Nickel	7440020	0.000000	0.000000	0.052163	0.469174	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Selenium	7782492	0.000000	0.000000	0.005000	0.020000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Total Recoverable Silver	7440224	0.000000	0.000000	NA	0.003784	0.00%	0.00%	No Data	0	None	None	NA	Acute
Total Recoverable Thallium	7440280	0.000000	0.000000	0.006300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Total Recoverable Zinc	7440666	0.625000	0.800000	0.119816	0.119816	521.63%	667.69%	Application	2	Monitoring	Monitoring	Chronic	Acute
Free Cyanide	57125	0.000000	0.000000	0.005200	0.022000	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
2,3,7,8 Tetrachlorodibenzo P Dioxin	1746016	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrolein	107028	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acrylonitrile	107131	0.000000	0.000000	0.000250	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzene	71432	0.000000	0.000000	0.051000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bromoform	75252	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Carbon Tetrachloride	56235	0.000000	0.000000	0.001600	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorobenzene	108907	0.000000	0.000000	21.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chlorodibromomethane	124481	0.000000	0.000000	0.013000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloroform	67663	0.000000	0.000000	0.470000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dichlorobromomethane	75274	0.000000	0.000000	0.017000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloroethane	107062	0.000000	0.000000	0.037000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1-Dichloroethylene	75354	0.000000	0.000000	0.003200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichloropropane	78875	0.000000	0.000000	0.015000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichloropropene	542756	0.000000	0.000000	1.700000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Ethylbenzene	100414	0.000000	0.000000	29.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Methyl Bromide	74839	0.000000	0.000000	1.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Max
Methylene Chloride	75092	0.000000	0.000000	0.590000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,2-Tetrachloroethane	79345	0.000000	0.000000	0.004000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Tetrachloroethylene	127184	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Toluene	108883	0.000000	0.000000	200.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Trans-Dichloroethylene	156605	0.000000	0.000000	140.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,1,1-Trichloroethane	71556	0.000000	0.000000	68,476.200000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
1,1,2-Trichloroethane	79005	0.000000	0.000000	0.016000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Trichloroethylene	79016	0.000000	0.000000	0.030000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Vinyl Chloride	75014	0.000000	0.000000	0.530000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chlorophenol	95578	0.000000	0.000000	0.150000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dichlorophenol	120832	0.000000	0.000000	0.290000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dimethylphenol	105679	0.000000	0.000000	0.850000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrophenol	51285	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pentachlorophenol	87865	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Phenol	108952	0.000000	0.000000	1,700.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4,6-Trichlorophenol	88062	0.000000	0.000000	0.002400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Acenaphthene	83329	0.000000	0.000000	0.990000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Anthracene	120127	0.000000	0.000000	40.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzidine	92875	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)anthracene	56553	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(a)pyrene	50328	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Benzo(k)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroisopropyl)ether	108601	0.000000	0.000000	65.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-ethylhexyl)phthalate	117817	0.000000	0.000000	0.002200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Butylbenzyl phthalate	85687	0.000000	0.000000	1.900000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-Chloronaphthalene	91587	0.000000	0.000000	1.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chrysene	218019	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dibenzo(a,h)anthracene	53703	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Dichlorobenzene	95501	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,3-Dichlorobenzene	541731	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,4-Dichlorobenzene	106467	0.000000	0.000000	2.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
3,3-Dichlorobenzidine	91941	0.000000	0.000000	0.000028	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Diethyl phthalate	84662	0.000000	0.000000	44.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dimethyl phthalate	131113	0.000000	0.000000	1,100.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Di-n-butyl phthalate	84742	0.000000	0.000000	4.500000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-Dinitrotoluene	121142	0.000000	0.000000	0.003400	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2-Diphenylhydrazine	122667	0.000000	0.000000	0.000200	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluoranthene	206440	0.000000	0.000000	0.140000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Fluorene	86737	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobenzene	118741	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorobutadiene	87683	0.000000	0.000000	0.018000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Hexachlorocyclopentadiene	77474	0.000000	0.000000	17.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

Parameter	CAS Number	Reported Discharge (mg/l)		Calculated Effluent Limitations (mg/l)		Reasonable Potential		Data Source	No. of Samples	Effluent Requirement		Justification	
		Average	Maximum	Average	Maximum	Average	Maximum			Average	Maximum	Average	Max
Hexachloroethane	67721	0.000000	0.000000	0.003300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Indeno(1,2,3-cd)pyrene	193395	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Isophorone	78591	0.000000	0.000000	0.960000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Nitrobenzene	98953	0.000000	0.000000	0.690000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodimethylamine	62759	0.000000	0.000000	0.003000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodi-n-Propylamine	621647	0.000000	0.000000	0.000510	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
N-Nitrosodiphenylamine	86306	0.000000	0.000000	0.006000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Pyrene	129000	0.000000	0.000000	4.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
1,2,4-Trichlorobenzene	120821	0.000000	0.000000	0.940000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Aldrin	309002	0.000000	0.000000	0.000000	0.003000	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
alpha-BHC	319846	0.000000	0.000000	0.000005	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Beta-BHC	319857	0.000000	0.000000	0.000017	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
gamma-BHC (Lindane)	58899	0.000000	0.000000	0.000063	0.000950	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Chlordane	57749	0.000000	0.000000	0.000001	0.002400	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDT	50293	0.000000	0.000000	0.000000	0.001100	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
4,4'-DDE	72559	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
4,4'-DDD	72548	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Dieldrin	60571	0.000000	0.000000	0.000000	0.000240	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Alpha-Endosulfan	959988	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Beta-Endosulfan	33213659	0.000000	0.000000	0.000056	0.000220	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endosulfan sulfate	1031078	0.000000	0.000000	0.089000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Endrin	72208	0.000000	0.000000	0.000036	0.000086	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Endrin aldehyde	7421934	0.000000	0.000000	0.000300	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Heptachlor	76448	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Heptachlor epoxide	1024573	0.000000	0.000000	0.000000	0.000520	0.00%	0.00%	No Data	0	None	None	HH Fish	Acute
Polychlorinated Biphenyls (PCBs)	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA	
Toxaphene	8001352	0.000000	0.000000	0.000000	0.000730	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
1,2,4,5-Tetrachlorobenzene	95943	0.000000	0.000000	0.001100	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2-methyl-4,6-dinitrophenol	534521	0.000000	0.000000	0.280000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
2,4-D	94757	0.000000	0.000000	95,188.170000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-TP (Silvex)	93721	0.000000	0.000000	3,423.810000	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
2,4,5-trichlorophenol	95954	0.000000	0.000000	3.600000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Asbestos	1332214	0.000000	0.000000	9,518,817,000.00	NA	0.00%	0.00%	No Data	0	None	None	HH DWS	NA
Benzo(b)fluoranthene	205992	0.000000	0.000000	0.000018	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(2-chloroethyl)ether	111444	0.000000	0.000000	0.000530	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Bis(chloromethyl)ether	542881	0.000000	0.000000	0.000000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Chloropyrifos	2921882	0.000000	0.000000	0.000041	0.000083	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (III)	16065831	0.000000	0.000000	0.086180	1.803049	0.00%	0.00%	No Data	0	None	None	Chronic	Acute
Chromium (VI)	18540299	0.040000	0.060000	0.011000	0.016000	363.64%	375.00%	Application	2	Monitoring	Monitoring	Chronic	Acute
Demeton	8065483	0.000000	0.000000	0.000100	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA
Dinitrophenols	25550587	0.000000	0.000000	5.300000	NA	0.00%	0.00%	No Data	0	None	None	HH Fish	NA
Guthion	86500	0.000000	0.000000	0.000010	NA	0.00%	0.00%	No Data	0	None	None	Chronic	NA

STEADY STATE TOXICS WASTELOAD ALLOCATION MODEL (SSTWAM2004) – REASONABLE POTENTIAL ANALYSIS – OUTFALL 002

KPDES



**KENTUCKY POLLUTANT
DISCHARGE ELIMINATION
SYSTEM**

PERMIT

PERMIT NO.: KY0000311
AI NO.: 1601

**AUTHORIZATION TO DISCHARGE UNDER THE
KENTUCKY POLLUTANT DISCHARGE ELIMINATION SYSTEM**

Pursuant to Authority in KRS 224,

North American Refractories Company
400 Fairway Drive
Moon Township, Pennsylvania 15108

is authorized to discharge from a facility located at

North American Refractories Company - South Shore Plant
US Highway 23
South Shore, Greenup County, Kentucky

to receiving waters named

Outfall 001 - Tygarts Creek at latitude 38-43-21 and longitude 82-57-35.

Outfall 002 - Tygarts Creek at latitude 38-43-16 and longitude 82-57-33.

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, III and IV hereof. The permit consists of this cover sheet, Part I 3 pages, Part II 1 page, Part III 1 page, and Part IV 3 pages.

This permit shall become effective on

This permit and the authorization to discharge shall expire at midnight,

Date Signed

Sandra L. Gruzesky, Director
Division of Water

PART I A - EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 001 - Process wastewater and storm water runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)				MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Other Units (Specify)		Measurement Frequency	Sample Type
			Monthly Avg.	Daily Max.		
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Temperature	N/A	N/A	N/A	89 °F	1/Month	Grab
Total Suspended Solids	N/A	N/A	30 mg/l	60 mg/l	1/Month	Grab
Oil & Grease	N/A	N/A	10 mg/l	15 mg/l	1/Month	Grab
BOD ₅ (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Recoverable Zinc (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Chemical Oxygen Demand (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Total Organic Carbon (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Hardness (as mg/l CaCO ₃)	N/A	N/A	Report	Report	1/Month	Grab
pH (standard units)	N/A	N/A	6.0 (min)	9.0 (max)	1/Month	Grab

The abbreviation N/A means Not Applicable.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

PART I A - EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the term of this permit, the permittee is authorized to discharge from Outfall serial number: 002 - Storm water runoff.

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS (lbs/day)				MONITORING REQUIREMENTS	
	Monthly Avg.	Daily Max.	Other Units (Specify)		Measurement Frequency	Sample Type
Flow (MGD)	Report	Report	N/A	N/A	1/Month	Instantaneous
Total Suspended Solids	N/A	N/A	30 mg/l	60 mg/l	1/Month	Grab
Oil & Grease	N/A	N/A	10 mg/l	15 mg/l	1/Month	Grab
Total Recoverable Zinc (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Hexavalent Chromium (mg/l)	N/A	N/A	Report	Report	1/Month	Grab
Hardness (as mg/l CaCO ₃)	N/A	N/A	Report	Report	1/Month	Grab
pH (standard units)	N/A	N/A	6.0 (min)	9.0 (max)	1/Month	Grab

The abbreviation N/A means Not Applicable.

There shall be no discharge of floating solids or visible foam or sheen in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: nearest accessible point prior to discharge to or mixing with the receiving waters or wastestreams from other outfalls.

PART I B - SCHEDULE OF COMPLIANCE

The permittee shall achieve compliance with all requirements on the effective date of this permit.



PART II - STANDARD CONDITIONS FOR KPDES PERMIT

This permit has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this permit does not relieve the permittee from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal, and local agencies.

It is the responsibility of the permittee to demonstrate compliance with permit parameter limitations by utilization of sufficiently sensitive analytical methods.

The permittee is also advised that all KPDES permit conditions in KPDES Regulation 401 KAR 5:065, Section 1 will apply to all discharges authorized by this permit.



PART III - OTHER REQUIREMENTS

A. Reporting of Monitoring Results

Monitoring results obtained during each monitoring period must be reported on a preprinted Discharge Monitoring Report (DMR) Form that will be mailed to you. The completed DMR for each monitoring period must be sent to the Division of Water at the address listed below (with a copy to the appropriate Regional Office) postmarked no later than the 28th day of the month following the monitoring period for which monitoring results were obtained.

Division of Water
Madisonville Regional Office
Madisonville State Office Bldg.
625 Hospital Drive
Madisonville, Kentucky 42431-1683
ATTN: Supervisor

Energy and Environment Cabinet
Dept. for Environmental Protection
Division of Water/Surface Water Permits
Branch
200 Fair Oaks Lane
Frankfort, Kentucky 40601

B. Reopener Clause

This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under 401 KAR 5:050 through 5:086, if the effluent standard or limitation so issued or approved:

1. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
2. Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of KRS Chapter 224 when applicable.

C. Outfall Signage

The KPDES permit establishes monitoring points, effluent limitations, and other conditions to address discharges from the permitted facility. In an effort to better document and clarify these locations the permittee should place and maintain a permanent marker at each of the monitoring locations.

PART IV - BEST MANAGEMENT PRACTICES

SECTION A. GENERAL CONDITIONS

1. Applicability

These conditions apply to all permittees who use, manufacture, store, handle, or discharge any pollutant listed as: (1) toxic under Section 307(a)(1) of the Clean Water Act; (2) oil, as defined in Section 311(a)(1) of the Act; (3) any pollutant listed as hazardous under Section 311 of the Act; or (4) is defined as a pollutant pursuant to KRS 224.01-010(35) and who have ancillary manufacturing operations which could result in (1) the release of a hazardous substance, pollutant, or contaminant, or (2) an environmental emergency, as defined in KRS 224.01-400, as amended, or any regulation promulgated pursuant thereto (hereinafter, the "BMP pollutants"). These operations include material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas.

2. BMP Plan

The permittee shall develop and implement a Best Management Practices (BMP) plan consistent with 401 KAR 5:065, Section 2(10) pursuant to KRS 224.70-110, which prevents or minimizes the potential for the release of "BMP pollutants" from ancillary activities through plant site runoff; spillage or leaks, sludge or waste disposal; or drainage from raw material storage. A Best Management Practices (BMP) plan will be prepared by the permittee unless the permittee can demonstrate through the submission of a BMP outline that the elements and intent of the BMP have been fulfilled through the use of existing plans such as the Spill Prevention Control and Countermeasure (SPCC) plans, contingency plans, and other applicable documents.

3. Implementation

If this is the first time for the BMP requirement, then the plan shall be developed and submitted to the Division of Water within 90 days of the effective date of the permit. Implementation shall be within 180 days of that submission. For permit renewals, the plan in effect at the time of permit reissuance shall remain in effect. Modifications to the plan as a result of ineffectiveness or plan changes to the facility shall be submitted to the Division of Water and implemented as soon as possible.

4. General Requirements

The BMP plan shall:

- a. Be documented in narrative form, and shall include any necessary plot plans, drawings, or maps.
- b. Establish specific objectives for the control of toxic and hazardous pollutants.
 - (1) Each facility component or system shall be examined for its potential for causing a release of "BMP pollutants" due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.

- (2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g., precipitation), or other circumstances which could result in a release of "BMP pollutants," the plan should include a prediction of the direction, rate of flow, and total quantity of the pollutants which could be released from the facility as result of each condition or circumstance.
- c. Establish specific Best Management Practices to meet the objectives identified under paragraph b of this section, addressing each component or system capable of causing a release of "BMP pollutants."
- d. Include any special conditions established in part b of this section.
- e. Be reviewed by plant engineering staff and the plant manager.

5. Specific Requirements

The plan shall be consistent with the general guidance contained in the publication entitled "NPDES Best Management Practices Guidance Document," and shall include the following baseline BMPs as a minimum.

- a. BMP Committee
- b. Reporting of BMP Incidents
- c. Risk Identification and Assessment
- d. Employee Training
- e. Inspections and Records
- f. Preventive Maintenance
- g. Good Housekeeping
- h. Materials Compatibility
- i. Security
- j. Materials Inventory

6. SPCC Plans

The BMP plan may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under Section 311 of the Act and 40 CFR Part 151, and may incorporate any part of such plans into the BMP plan by reference.

7. Hazardous Waste Management

The permittee shall assure the proper management of solid and hazardous waste in accordance with the regulations promulgated under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1978 (RCRA) (40 U.S.C. 6901 et seq.) Management practices required under RCRA regulations shall be referenced in the BMP plan.

8. Documentation

The permittee shall maintain a description of the BMP plan at the facility and shall make the plan available upon request to NREPC personnel. Initial copies and modifications thereof shall be sent to the following addresses when required by Section 3:

Division of Water
Madisonville Regional Office
Madisonville State Office Bldg.
625 Hospital Drive
Madisonville, Kentucky 42431-1683
ATTN: Supervisor

Energy and Environment Cabinet
Dept. for Environmental Protection
Division of Water/Surface Water Permits
Branch
200 Fair Oaks Lane
Frankfort, Kentucky 40601

9. **BMP Plan Modification**

The permittee shall amend the BMP plan whenever there is a change in the facility or change in the operation of the facility which materially increases the potential for the ancillary activities to result in the release of "BMP pollutants."

10. **Modification for Ineffectiveness**

If the BMP plan proves to be ineffective in achieving the general objective of preventing the release of "BMP pollutants," then the specific objectives and requirements under paragraphs b and c of Section 4, the permit, and/or the BMP plan shall be subject to modification to incorporate revised BMP requirements. If at any time following the issuance of this permit the BMP plan is found to be inadequate pursuant to a state or federal site inspection or plan review, the plan shall be modified to incorporate such changes necessary to resolve the concerns.

SECTION B. SPECIFIC CONDITIONS

Periodically Discharged Wastewaters Not Specifically Covered By Effluent Conditions

The permittee shall include in this BMP plan procedures and controls necessary for the handling of periodically discharged wastewaters such as intake screen backwash, meter calibration, fire protection, hydrostatic testing water, water associated with demolition projects, etc.